

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application No.: 10/810,983

Filing Date: March 26, 2004

Applicant: Yar-Ming Wang et al.

Group Art Unit: 1795

Examiner: Kishor Mayekar

Title: Surface-cleaning to Remove Metal and Other Contaminants
Using Hydrogen

Attorney Docket: GP-304670 (8540R-85)

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Commissioner for Patents
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REPLY BRIEF UNDER 37 CFR § 41.41

This is a reply to the Examiner's Answer mailed April 12, 2010. This brief is timely filed on June 14, 2010, as June 12 falls on a Saturday.

Response to Examiner's Arguments

The Examiner's rationale for combining the Zaki and Polan process factors into the Hoffman process is faulty because it fails to account for the Hoffman's different teaching on amount of current to use as well as the difference in strength of cleaning solution used by Zaki and Polan.

The combined references provide no reason to use Appellants' claimed combination of a current density of less than one A/dm² with a non-aggressive acid or base electrolyte medium to separate adhered metal particle matter from a conductive surface. In answer to Appellants' arguments the Examiner first admits that "none of the references specifically provides the reason" for one to modify the Hoffman process in the ways needed to come to Appellants' claimed process. See Answer at 7. The Examiner then misstates the content of the Hoffman reference when he says, "Hoffman discloses the preferred range of amps for the actual cleaning of the body . . .," *id.* at 7-8, because what Hoffman discloses is a preferred range of **amps per gallon**, specifically "about 1 amp per gallon of cleaning solution to about 20 amps per gallon of cleaning solution" (col. 7, ll. 20-21). The Hoffman unit of measurement cannot be squared with the unit of measurement, amps per area, used in the other references of record (not only Zaki and Polan, but also Bruno, e.g. at col. 2 l. 66, Cooke, e.g. at col. 6, ll. 3-6, and Ogiara, e.g. at col. 6, ll. 55-56).

Further, Appellants pointed out by their example of cleaning a vehicle body (Appeal Br. top of p. 7) that the teachings in the Hoffman patent encompass nonsensical results. As another example, the Hoffman patent directs one to use the same current for a grocery cart as for a ton of shredded metal if both were cleaned in the same volume of cleaning solution.

The point is that one of ordinary skill in the art relate the amps per gallon measurements of the Hoffman patent to the rest of the art which determines amperage on an area basis. If one knows from the remaining references of record that, for aggressive, highly alkaline cleaning

solutions and for removing oils and greases from surfaces, one can achieve only marginal electrocleaning below 3 A/dm^2 , then one would expect to need an even greater current per area if a less aggressive cleaning solution is used; one would have no direction as to required amps per area to remove adhered metal particle matter; one could not glean from the Hoffman patent's "amps per gallon" any different expectation.

Thus, there is no expectation of success in removing adhered metal particle matter in a less aggressive cleaning solution at much, much lower current densities.

The Examiner has also made an error in asserting that, if "current density in an electrocleaning [process] is an optimizing variable" one would "consider a lower current density with the result of a light or marginal electrocleaning of the body in addition to a higher current density to effectively remove the surface contaminants from the body" (Answer p.8) because this fails to take into account that the marginal cleaning was obtained with an aggressive, highly alkaline cleaning solution and referred to removal of grease and oil, not adhered metal particle matter. The Examiner implies, moreover, that, even if one were using the same aggressive, highly alkaline cleaning solution to clean the same grease and oil from a surface one would have as much reason to try the range of amps per area known to produce poor cleaning as the range of amps per area known to produce good electrocleaning. Respectfully, this makes little sense. To expect **successful** electrocleaning, the person of ordinary skill in the art would tend to conditions that produced good, rather than poor, electrocleaning under other conditions.

The known poor cleaning results at low amps per area in prior art processes, as demonstrated by Zaki, Polan, and Ogihara, would lead one away from adopting a method using lower amps per area **and** a less aggressive cleaning solution to remove adhered metal particle matter instead of just the grease and oil of Zaki, Polan, and Ogihara.

Appellants continue to rely on the argument for patentability of underlying dependent claim 1 for patentability of separately rejected claims 3 and 18.

Conclusion

Accordingly, Applicant continue to respectfully requests that the Board reverse all of the rejections of claims 1-4, 6-9, 11-18, and 20.

Should communication by telephone be needed or helpful, the undersigned can be reached at (248) 641-1220 (direct line).

Respectfully submitted,

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